Remarks/Arguments

The specification has been amended to clarify the priority.

By this amendment, claims 6-8, 15-17, 23 and 37 have been canceled and other claims amended as indicated above. **The claims remaining in consideration are claims 1-5, 9-14, 18-22, 24-36 and 38-42; the single independent claim is claim 1.** No new matter has been added.

Claims Rejections – 35 USC § 112

Claim 1 was rejected under 35 USC § 112. By this amendment the objected to "rubber-type" language has been deleted; and the unclear language identified in the Examiner's para. 4 has been clarified.

Claims 8 and 15 have been canceled thereby removing the objections thereto.

In claims 10, 13-14 and 34-36, last line, the word "or" has been changed to –and—as the Examiner suggested. The suggestion is appreciated.

The Examiner has asked for an explanation of "$_n$" in claim 22. "$_n$" is the ligand number corresponding to the metal M. Support for this is in the Specification, page 8, line 1, and page 9, line 27.

In claim 38 the words "rubber or rubber-like" have been deleted.

Claims 32-35 have been amended to be in proper Markush format. It is believed that this amendment overcomes the Examiner's rejection that was limited to claims 33 and 34.

Claims Rejections – 35 USC §102

Claims 1-42 are rejected under 35 USC 1023(b) as being anticipated by Drake et al., US Patent 5,300,569 (hereinafter "Drake"). Claim 1 has been amended to include *inter alia* much of original claim 16. Since Drake sticks to carboxyl groups it does not anticipate amended claim 1.

Drake has a different concept that cannot render obvious the present invention that includes a coating of a functionalized polymer deposited from solution. One object and intention of Drake is to provide a general means, i.e. an adhesive for elastomers and rubbers making them capable of adhering to a substrate that can be another elastomer, plastic, metal, fabrics, paper etc. In column 4, lines 19-30 of Drake one finds:

> We have discovered that alpha, beta-ethylenically unsaturated dicarboxylic acids and derivatives, e.g., maleic anhydride, which have been adducted to such unsaturated as liquid polybutadine or styrene butadiene resins can be compounded with unvulcanized elastomers of nearly all types to give very strong adhesion to other elastomers, plastics, metals, minerals, fabrics, fibers and miscellaneous substrates, following a vulcanization step. While many materials are known to promote adhesion between elastomers and other substrates, none appear to be as general as this new invention . . .

To achieve this universality Drake produces the functionalized polymer "in situ" by adducting an unsaturated polymeric dicarboxylic acid or derivates with an elastomer, which is the elastomer to be compounded. For the sake of that general concept Drake has to accept considerable drawbacks. Having discussed the benefits of the invention these drawbacks are given in column 7, first paragraph:

> Most other polychloroprene elastomers ordinarily used to make molded or extruded articles, adhesives and coatings, can be cured by the adducts described in this invention. This does not include aqueous latexes, since the presence of moisture brings about hydrolysis of the anhydride and deactivates the organic acid adduct as an accelerator.

> Elastomers which are normally vulcanized using amines or polyamines to promote crosslinking, all as known to the art, are not effectively cured in the presence of the polymeric adducts due to preferential reaction of the curative with the polymeric adduct . . .

Thus, the adhesive materials can only be used in the form of liquid polymers or in solutions with organic solvents.

Drake generally proposes to modify the rubber that shall adhere to the substrate with the maleic anhydrate adducted polymer (see example 7). Thus, important properties and characteristics of the rubber composition will be influenced which is not acceptable for rubber compositions used in tire industries, for example. In another embodiment in Drake, the adhesive made from the adduct and a further elastomer is used as a "film or spreadable liquid" (see abstract). Layers deposited from liquid polymers have a certain thickness and cannot be made as very thin layers, for example monomolecular layers.

In contrast the present invention uses functionalized polymers which are not sensitive to hydrolization and can be handled without problems in a solution, preferably according to claim 2 in an aqueous solution. The reinforcement element is for example dipped in this solution which produces a coating on top of the metal reinforcement element. The reinforcement element is then embedded in the co-vulcanizable elastomeric composition to be reinforced and the whole composite can be vulcanized to give a product.

As the present invention comprises (according to claim 1) a "coating of a polymer deposited from a solution" this is always a thin layer that does not influence the characteristics of the bulk elastomer to be reinforced. This is an important benefit of the invention with respect to the production of tires, hoses, belts and so on, i.e. the products cited in claims 39-42.

Since Drake excludes latexes, certain elastomers and any deposition from aqueous solution, Drake points away from the present invention and does not render the invention obvious.

It is submitted that the application is now in condition for allowance and an early notice of allowability is solicited.

Respectfully submitted,

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